## IN THE CLAIMS:

Please amend the claims as follows:

1. (Previously Presented):  A computer-implemented method of generating a graphical representation of data, comprising:

generating an abstract data structure defining a plurality of abstract attributes representing an abstract graphical representation of the data;

providing transformation rules for transforming the abstract data structure into a concrete data structure, the transformation rules comprising a plurality of subsets of transformation rules each subset describing graphical attributes of a requested graphical representation type and being specific to a different graphics rendering language, whereby the transformation rules support a plurality of graphical representation types and a plurality of graphics rendering languages;

selecting a subset of the plurality of subsets of transformation rules in accordance with a requested graphical representation type; and

generating, on the basis of the abstract data structure and the selected subset of transformation rules, a concrete data structure defining a concrete graphical representation of the data in a graphics rendering language; wherein generating the concrete data structure is done by operation of a computer processor.

2. (Previously Presented):  The method of claim 1, wherein generating the abstract data structure comprises:

providing a plurality of abstract data structure templates, each abstract data structure template being associated with a specific graphical representation type;

determining the requested graphical representation type; and

selecting an abstract data structure template from the plurality of abstract data structure templates on the basis of the requested graphical representation type;

the abstract data structure being generated using the selected abstract data structure template.

630806_1

3. (Original): The method of claim 2, wherein the requested graphical representation type is one of a bar chart, a line chart, a pie chart, a scatter plot and a combination thereof.

4. (Original): The method of claim 2, wherein the plurality of abstract data structure templates is associated with a particular data source of the data.

5. (Canceled)

6. (Canceled)

7. (Previously Presented): The method of claim 1, wherein the requested graphical representation type is one of a bar chart, a line chart, a pie chart, a scatter plot and a combination thereof.

8. (Original): The method of claim 1, wherein at least one of the abstract data structure and the concrete data structure is defined in Extensible Markup Language (XML).

9. (Original): The method of claim 1, wherein the concrete data structure is defined in a vector-based graphics language.

10. (Original): The method of claim 9, wherein the vector-based graphics language is one of Vector Markup Language (VML), Scalable Vector Graphics (SVG), and Hypertext Markup Language (HTML) Image Maps.

11. (Previously Presented): A computer-implemented method of generating a graphical representation of data, comprising:

receiving a selection of a requested graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the selected graphical representation type;

generating, on the basis of the requested graphical representation type and the selected abstract data structure template, an abstract data structure defining a plurality of abstract attributes abstractly representing the data set in the graphical representation;

providing transformation rules for transforming the abstract data structure into a concrete data structure, the transformation rules describing graphical attributes of the requested graphical representation type; and

generating, on the basis of the abstract data structure, a concrete data structure defining a concrete graphical representation in a graphics rendering language using the transformation rules; wherein generating the concrete data structure is done by operation of a computer processor.

12. (Original): The method of claim 11, further comprising:

rendering the data set, as described in the graphics rendering language, in a graphic.

13. (Original): The method of claim 11, wherein the graphical representation type is one of a bar chart, a line chart, a pie chart, a scatter plot and a combination thereof.

14. (Original): The method of claim 11, wherein the plurality of abstract data structure templates is associated with a particular data source of the data.

15. (Original): The method of claim 11, further comprising:

selecting a subset of the transformation rules in accordance with the graphical representation type; and

630806_1

generating the concrete data structure using the subset of the transformation rules.

16. (Original): The method of claim 11, wherein at least one of the abstract data structure and the concrete data structure is defined in Extensible Markup Language (XML).

17. (Original): The method of claim 11, wherein the concrete data structure is defined in a vector-based graphics language.

18. (Original): The method of claim 17, wherein the vector-based graphics language is one of Vector Markup Language (VML), Scalable Vector Graphics (SVG), and Hypertext Markup Language (HTML) Image Maps.

19. (Previously Presented): A computer-implemented method of generating an abstract data structure for a graphical representation of data, comprising:

    providing a plurality of abstract data structure templates, each abstract data structure template being associated with a specific graphical representation type;

    determining a requested graphical representation type;

    selecting an abstract data structure template from the plurality of abstract data structure templates on the basis of the requested graphical representation type;

    generating an abstract data structure using the selected abstract data structure template; and

    transforming the abstract data structure into a plurality of concrete data structures, each concrete data structure corresponding to a different graphics rendering language; wherein transforming the abstract data structure is done by operation of a computer processor.

20. (Previously Presented): A computer-implemented method of generating a graphical representation of data, comprising:

receiving a selection of a graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the selected graphical representation type;

generating, on the basis of the selected abstract data structure template, an abstract data structure defining a logical representation of the data set graphically represented according to the selected graphical representation type; and

transforming the abstract data structure into a plurality of concrete data structures, each concrete data structure corresponding to a different graphics rendering language; wherein transforming the abstract data structure is done by operation of a computer processor.

21.    (Previously Presented):    A computer-implemented method of generating a graphical representation of data, comprising:

receiving abstract attributes values comprising at least a selection of a requested graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the selected graphical representation type;

generating, on the basis of the received abstract attributes values and the selected abstract data structure template, an abstract data structure defining a plurality of abstract attributes abstractly representing the data set in the graphical representation;

selecting transformation rules for transforming the abstract data structure into a concrete data structure from a plurality of transformation rules, the transformation rules describing graphical attributes of the requested graphical representation type; and

generating, on the basis of the abstract data structure, a concrete data structure defining a concrete graphical representation in a graphics rendering language using the transformation rules.

22. (Previously Presented): A computer-readable storage medium containing a program which, when executed by a processor, performs a process of generating a graphical representation of data, the process comprising:

generating an abstract data structure defining a plurality of abstract attributes representing an abstract graphical representation of the data;

retrieving transformation rules for transforming the abstract data structure into a concrete data structure, the transformation rules comprising a plurality of subsets of transformation rules each subset describing graphical attributes of a requested graphical representation type and being specific to a different graphics rendering language, whereby the transformation rules support a plurality of graphical representation types and a plurality of graphics rendering languages;

selecting a subset of the plurality of subsets of transformation rules in accordance with a requested graphical representation type; and

generating, on the basis of the abstract data structure and the selected subset of transformation rules, a concrete data structure defining a concrete graphical representation of the data in a graphics rendering language.

23. (Previously Presented): The computer-readable storage medium of claim 22, wherein the process further comprises:

retrieving a plurality of abstract data structure templates, each abstract data structure template being associated with a specific graphical representation type;

determining a requested graphical representation type;

selecting an abstract data structure template from the plurality of abstract data structure templates on the basis of the requested graphical representation type; and

generating the abstract data structure using the selected abstract data structure template.

24. (Previously Presented): The computer-readable storage medium of claim 23, wherein the requested graphical representation type is one of a bar chart, a line chart, a pie chart, a scatter plot and a combination thereof.

25. (Previously Presented): The computer-readable storage medium of claim 23, wherein the plurality of abstract data structure templates is associated with a particular data source of the data.

26. (Canceled)

27. (Canceled)

28. (Previously Presented): The computer-readable storage medium of claim 22, wherein the requested graphical representation type is one of a bar chart, a line chart, a pie chart, a scatter plot and a combination thereof.

29. (Previously Presented): The computer-readable storage medium of claim 22, wherein at least one of the abstract data structure and the concrete data structure is defined in Extensible Markup Language (XML).

30. (Previously Presented): The computer-readable storage medium of claim 22, wherein the concrete data structure is defined in a vector-based graphics language.

31. (Previously Presented): The computer-readable storage medium of claim 30, wherein the vector-based graphics language is one of Vector Markup Language (VML),

Scalable Vector Graphics (SVG), and Hypertext Markup Language (HTML) Image Maps.

32.    (Previously Presented):    A computer-readable storage medium containing a program which, when executed by a processor, performs a process of generating a graphical representation of data, the process comprising:

receiving a selection of a requested graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the requested graphical representation type;

generating, on the basis of the requested graphical representation type and the selected abstract data structure template, an abstract data structure defining a plurality of abstract attributes abstractly representing the data set in the graphical representation;

retrieving transformation rules for transforming the abstract data structure into a concrete data structure, the transformation rules describing graphical attributes of the requested graphical representation type; and

generating, on the basis of the abstract data structure, a concrete data structure defining a concrete graphical representation in a graphics rendering language using the transformation rules.

33.    (Previously Presented):    The computer-readable storage medium of claim 32, wherein the process further comprises:

rendering the data set, as described in the graphics rendering language, in a graphic.

34. (Previously Presented): The computer-readable storage medium of claim 32, wherein the graphical representation type is one of a bar chart, a line chart, a pie chart, a scatter plot and a combination thereof.

35. (Previously Presented): The computer-readable storage medium of claim 32, wherein the plurality of abstract data structure templates is associated with a particular data source of the data.

36. (Previously Presented): The computer-readable storage medium of claim 32, wherein the process further comprises:

selecting a subset of the transformation rules in accordance with the graphical representation type; and

generating the concrete data structure using the subset of the transformation rules.

37. (Previously Presented): The computer-readable storage medium of claim 32, wherein at least one of the abstract data structure and the concrete data structure is defined in Extensible Markup Language (XML).

38. (Previously Presented): The computer-readable storage medium of claim 32, wherein the concrete data structure is defined in a vector-based graphics language.

39. (Previously Presented): The computer-readable storage medium of claim 38, wherein the vector-based graphics language is one of Vector Markup Language (VML), Scalable Vector Graphics (SVG), and Hypertext Markup Language (HTML) Image Maps.

40. (Previously Presented): A computer-readable storage medium containing a program which, when executed by a processor, performs a process of generating an abstract data structure for a graphical representation of data, the process comprising:

retrieving a plurality of abstract data structure templates, each abstract data structure template being associated with a specific graphical representation type;

determining a requested graphical representation type;

selecting an abstract data structure template from the plurality of abstract data structure templates on the basis of the requested graphical representation type;

generating an abstract data structure using the selected abstract data structure template; and

transforming the abstract data structure into a plurality of concrete data structures, each concrete data structure corresponding to a different graphics rendering language.

41. (Previously Presented): A computer-readable storage medium containing a program which, when executed by a processor, performs a process of generating a graphical representation of data, the process comprising:

receiving a selection of a graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the selected graphical representation type;

generating, on the basis of the selected abstract data structure template, an abstract data structure defining a logical representation of the data set graphically represented according to the selected graphical representation type; and

transforming the abstract data structure into a plurality of concrete data structures, each concrete data structure corresponding to a different graphics rendering language.

42. (Currently Amended): A computer-readable storage medium containing a program which, when executed by a processor, performs a process of generating a graphical representation of data, the process comprising:

receiving abstract attributes values comprising at least a selection of a requested graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for ~~for~~ generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the selected graphical representation type;

generating, on the basis of the received abstract attributes values and the selected abstract data structure template, an abstract data structure defining a plurality of abstract attributes abstractly representing the data set in the graphical representation;

selecting transformation rules for transforming the abstract data structure into a concrete data structure from a plurality of transformation rules, the transformation rules describing graphical attributes of the requested graphical representation type; and

generating, on the basis of the abstract data structure, a concrete data structure defining a concrete graphical representation in a graphics rendering language using the transformation rules.


43. (Previously Presented): A computer, comprising at least one processor a memory and further comprising:

a database having data; and

at least one graphics language framework residing in the memory for generating graphics rendering language for the data, the at least one graphics language framework, when executed by the at least one processor, being configured for:

generating an abstract data structure defining a plurality of abstract attributes representing an abstract graphical representation of the data;

retrieving transformation rules for transforming the abstract data structure into a concrete data structure, the transformation rules comprising a plurality of subsets of transformation rules each subset describing graphical attributes of a requested graphical representation type and being specific to a different graphics rendering language, whereby the transformation rules support a plurality of graphical representation types and a plurality of graphics rendering languages;

selecting a subset of the plurality of subsets of transformation rules in accordance with a requested graphical representation type; and

generating, on the basis of the abstract data structure and the selected subset of transformation rules, a concrete data structure defining a concrete graphical representation of the data in a graphics rendering language.


44. (Previously Presented): A computer, comprising at least one processor a memory and further comprising:

a database having data; and

at least one abstract data structure interface residing in the memory for generating an abstract data structure for a graphical representation of the data, the at least one abstract data structure interface, when executed by the at least one processor, being configured for:

retrieving a plurality of abstract data structure templates, each abstract data structure template being associated with a specific graphical representation type;

determining a requested graphical representation type;

selecting an abstract data structure template from the plurality of abstract data structure templates on the basis of the requested graphical representation type;

generating an abstract data structure using the selected abstract data structure template; and

transforming the abstract data structure into a plurality of concrete data structures, each concrete data structure corresponding to a different graphics rendering language.

45. (Previously Presented): A computer, comprising at least one processor a memory and further comprising:

a database having data; and

at least one graphics language framework residing in the memory for generating graphics rendering language for the data, the at least one graphics language framework, when executed by the at least one processor, being configured for:

receiving a selection of a graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the selected graphical representation type;

generating, on the basis of the selected abstract data structure template, an abstract data structure defining a logical representation of the data set graphically represented according to the selected graphical representation type; and

transforming the abstract data structure into a plurality of concrete data structures, each concrete data structure corresponding to a different graphics rendering language.

46. (Previously Presented): A computer, comprising at least one processor a memory and further comprising:

a database having data; and

at least one graphics language framework residing in the memory for generating graphics rendering language for the data, the at least one graphics language framework, when executed by the at least one processor, being configured for:

receiving a selection of a requested graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the requested graphical representation type;

generating, on the basis of the requested graphical representation type and the selected abstract data structure template, an abstract data structure defining a plurality of abstract attributes abstractly representing the data set in a graphical representation;

retrieving transformation rules for transforming the abstract data structure into a concrete data structure, the transformation rules describing graphical attributes of the requested graphical representation type; and

generating, on the basis of the abstract data structure, a concrete data structure defining a concrete graphics rendering language using the transformation rules.

47. (Previously Presented): A computer, comprising at least one processor a memory and further comprising:

a database having data; and

at least one graphics language framework residing in the memory for generating graphics rendering language for the data, the at least one graphics language framework, when executed by the at least one processor, being configured for:

receiving abstract attributes values comprising at least a selection of a requested graphical representation type for a selected data set;

selecting an abstract data structure template from a plurality of abstract data structure templates, each being specific to a different graphical representation type and defining a plurality of template attributes for generically representing an abstract graphical representation in the respective different graphical representation type, wherein the selected abstract data structure template is specific to the selected graphical representation type;

generating, on the basis of the received abstract attributes values and the selected abstract data structure template, an abstract data structure defining a plurality of abstract attributes abstractly representing the data set in the graphical representation;

selecting transformation rules for transforming the abstract data structure into a concrete data structure from a plurality of transformation rules, the transformation rules describing graphical attributes of the requested graphical representation type; and

generating, on the basis of the abstract data structure, a concrete data structure defining a concrete graphical representation in a graphics rendering language using the transformation rules.